In compliance with practice guidelines for making amendments, Applicants present all pending claims with status indicators.

1. (ORIGINAL) A mammalian lipo-derived stem cell substantially free of mature adipocytes.

(Claim 2: CANCELLED)

3. (CURRENTLY AMENDED) The cell of claim 1 ~~2~~, which has two or more developmental phenotypes selected from the group of developmental phenotypes consisting of adipogenic, chondrogenic, cardiogenic, dermatogenic, hematopoetic, hemagiogenic, myogenic, nephrogenic, ~~neurogenic, neuralgiagenic,~~ urogenitogenic, osteogenic, pericardiogenic, periteogenic, pleurogenic, ~~splanchogenic,~~ and stromal and developmental phenotypes.

4. (CURRENTLY AMENDED) The cell of any of claims 1 ~~1-3~~, which is human.

5. (CURRENTLY AMENDED) The cell of any of claims 1 ~~1-4~~, which is genetically modified.

6. (CURRENTLY AMENDED) The cell of any of claims 1 ~~1-5~~, which has a cell-surface bound intercellular signaling moiety.

7. (CURRENTLY AMENDED) The cell of any of claims 1 ~~1-5~~, which secretes a hormone.

8. (ORIGINAL) The cell of claim 7, wherein the hormone is selected from the group of hormones consisting of cytokines and growth factors.

9. (CURRENTLY AMENDED) A defined cell population comprising a cell of claim 1 ~~any of claims 1-8~~.

10. (ORIGINAL) The defined cell population of claim 9, which is heterogeneous.

11. (CURRENTLY AMENDED) The defined cell population of claim 9 ~~or 10~~, further comprising ~~compressing~~ a stem cell selected from the group of cells consisting of neural stem cells (NSC), hematopoetic stem cell (HPC), embryonic stem cells (ESC), and mixtures thereof.

12. (CURRENTLY AMENDED) The defined cell population of claim 9, which consists essentially of the mammalian lipo-derived stem cells ~~according to any of claims 1-8~~.

13. (CURRENTLY AMENDED) The defined cell population of claim 9 ~~or 12~~, which is substantially homogenous.

(Claims 14-35: CANCELLED)

36. (CURRENTLY AMENDED) A method of obtaining a genetically-modified cell comprising exposing the cell of claim 1 ~~any of claims 1-8~~ to a gene transfer vector comprising a nucleic acid including a transgene, whereby the

nucleic acid is introduced into the cell under conditions whereby the transgene is expressed within the cell.

37. (ORIGINAL) The method of claim 36, wherein the transgene encodes a protein conferring resistance to a toxin.

38. (CURRENTLY AMENDED) A method of delivering a transgene to an animal comprising (a) obtaining a genetically-modified cell in accordance with claim 36 ~~or 37~~ and (b) introducing the cell into the animal, such that the transgene is expressed in vivo.

39. (CURRENTLY AMENDED) A method of differentiating the cell of claim 1 ~~any of claims 1-8~~ comprising culturing the cell in a morphogenic medium under conditions sufficient for the cell to differentiate.

40. (CURRENTLY AMENDED) The method of claim 39, wherein the medium is an adipogenic, chondrogenic, cardiogenic, dermatogenic, embryonic, fetal, hematopoetic, hemangiogenic, myogenic, nephrogenic, ~~neurogenic, neuralgiagenic,~~ urogenitogenic, osteogenic, pericardiogenic, peritoneogenic, pleurogenic, ~~and splanchogenic,~~ or stromogenic media.

41. (CURRENTLY AMENDED) The method of claim 39 ~~or 40~~, wherein the morphogenic medium is an adipogenic medium and the cell is monitored to identify adipogenic differentiation.

42. (CURRENTLY AMENDED) The method of claim 39 ~~or 40~~, wherein the morphogenic medium is a chondrogenic medium and the cell is monitored to identify chondrogenic differentiation.

43. (CURRENTLY AMENDED) The method of claim 39 ~~or 40~~, wherein the morphogenic medium is an embryonic or fetal medium and the cell is monitored to identify embryonic or fetal phenotype.

44. (CURRENTLY AMENDED) The method of claim 39 ~~or 40~~, wherein the morphogenic medium is a myogenic medium and the cell is monitored to identify myogenic differentiation.

45. (CURRENTLY AMENDED) The method of 39 ~~or 40~~, wherein the morphogenic medium is an osteogenic medium and the cell is monitored to identify osteogenic differentiation.

46. (CURRENTLY AMENDED) The method of claim 39 ~~or 40~~, wherein the morphogenic medium is a stromal medium and the cell is monitored to identify stromal or hematopoetic differentiation.

47. (CURRENTLY AMENDED) The method of claim 39 ~~any of claims 39-46~~, wherein the cell differentiates in vitro.

48. (CURRENTLY AMENDED) The method of claim 39 ~~any of claims 39-46~~, wherein the cell differentiates in vivo.

49. (CURRENTLY AMENDED) A method of producing hormones, comprising (a) culturing the cell of claim 7 ~~or 8~~ within a medium under conditions sufficient for the cell to secrete the hormone into the medium and (b) isolating the hormone from the medium.

50. (CURRENTLY AMENDED) A method of promoting the closure of a wound within a patient comprising introducing the cell of claim 7 ~~or 8~~ into the vicinity of a wound under conditions sufficient for the cell to produce the hormone, whereby the presence of the hormone promotes closure of the wound.

51. (CURRENTLY AMENDED) A method of promoting neovascularization within tissue, comprising introducing the cell of claim 7 ~~or 8~~ into the tissue under condition sufficient for the cell to produce the hormone, whereby the presence of the hormone promotes neovascularization within the tissue.

52. (ORIGINAL) The method of claim 51, wherein the tissue is within an animal.

53. (CURRENTLY AMENDED) The method of claim 51 ~~or 52~~, wherein the tissue is a graft.

54. (CURRENTLY AMENDED) The method of claim 49 ~~any of claims 49-53~~, wherein the hormone is a growth factor selected from the group of growth factor consisting of human growth factor, nerve growth factor, vascular and endothelial cell growth factor, and members of the TGFβ superfamily.

55. (CURRENTLY AMENDED) A method of conditioning culture medium comprising exposing a cell culture medium to the cell of claim 1 ~~any of claims 1-7~~ under conditions sufficient for the cell to condition the medium.

56. (ORIGINAL) The method of claim 55, wherein the medium is separated from the cell after it has been conditioned.

57. (CURRENTLY AMENDED) The method of claim 36, 38, 39, 49, 50, 51 or 55, ~~any of claims 36-56,~~ wherein the cell is within a defined cell population ~~of any of claims 9-16~~.

58. (CURRENTLY AMENDED) A conditioned culture medium produced in accordance with the method of claim 55 ~~or 56~~.

59. (CURRENTLY AMENDED) The conditioned culture medium of claim 58, which is substantially free of the mammalian lipo-derived stem cell ~~a cell of any of claims 1-7~~.

60. (CURRENTLY AMENDED) A method of culturing a stem cell comprising maintaining a stem cell in the conditioned medium of claim 58 ~~or 59~~ under conditions for the stem cell to remain viable.

61. (ORIGINAL) The method of claim 60, which further comprises permitting successive rounds of mitotic division of the stem cell to form an expanded population of stem cells.

62. (CURRENTLY AMENDED) The method of claim 60 ~~60-61~~, wherein the medium is substantially free of the mammalian lipo-derived stem cells ~~of any of claims 1-7~~.

63. (CURRENTLY AMENDED) The method of claim 60 ~~any of claims 60-62~~, wherein the medium contains the mammalian lipo-derived stem cells ~~of any of claims 1-7~~.

64. (CURRENTLY AMENDED) The method of claim 63, wherein a stem cell and the mammalian lipo-derived stem cell ~~a lipo-derived a cell~~ are in contact.

65. (CURRENTLY AMENDED) The method of claim 60 ~~any of claims 60-64~~, wherein a stem cell and hemopoetic stem.

(Claims 66-72: CANCELLED)

73. (CURRENTLY AMENDED) An implant comprising the cell of claim 1 ~~any of claims 1-7~~.

74. (CURRENTLY AMENDED) An implant comprising the population of claim 9 ~~any of 8-13~~.

(Claims 75-76: CANCELLED)

77. (ORIGINAL) A kit for isolating stem cells from adipose tissues comprising a means for isolating adipose tissue from a patient and a means for separating stem cells from the remainder of the adipose tissue.

78. (ORIGINAL) The kit of claim 77, further comprising a medium for differentiating the stem cells.

79. (CURRENTLY AMENDED) The kit of claim 78, wherein the medium is selected from the group of media consisting of adipogenic, chondorgenic, cardiorgenic, dermatogenic, embryogenic, fetal, hematopoetic, hemangiogenic, myogenic, nephrogenic, ~~neurogenic, neuralgiagenic,~~ urogenitogenic, osteogenic, pericardiogenic, peritoneogenic, pleurogenic, and ~~splanchogenic,~~ and stromogenic media.

(Claims 80-131: CANCELLED)

132. (ORIGINAL) A method of isolating stem cells from adipose tissues comprising isolation adipose tissue from a patient and separating stem cells from the remainder of the adipose tissue.

133. (ORIGINAL) The method of claim 132, further comprising differentiating the stem cells.

134. (ORIGINAL) The method of claim 133, wherein the stem cells are differentiated into one or more precursor cell types.

135. (ORIGINAL) The method of claim 134, wherein one or more precursor cell types is selected from the group of precursor cell types consisting of preadipocytes, premyocytes, and preosteocytes.

136. (ORIGINAL) The method of claim 133, wherein the stem cells are differentiated into one or more mature cell types.

137. (CURRENTLY AMENDED) The method of claim 134, wherein one or more cell types is selected from the group of cell types selected from the group of cell types consisting of adipocytes, chondrocytes, dermal connective tissue cells, hemangial cells tissues, myocytes, osteocytes, ~~neurons, neralglia,~~ urogenital cells, pleural and peritoneal cells, visceral cells, mesodermal glandular cells, and stromal cells.

138. (ORIGINAL) The method of claim 132, wherein the adipose tissue is liposuction effluent.

139. (NEW) An isolated adipose-derived stem cell (ADSC).

140. (NEW) The stem cell of claim 139, that is multipotent.

141. (NEW) The stem cell of claim 139, that differentiates into a mesodermal tissue.

142. (NEW) An adipose-derived stem-cell enriched fraction (ADSC-EF) of an adipose tissue sample from a subject, said fraction substantially free of adipocytes.

143. (NEW) The stem cell of claim 139 which is human.

144. (NEW) The stem cell of claim 139, which is genetically modified.

145. (NEW) A defined cell population comprising a plurality of the cell of claim 139.

146. (NEW) The defined cell population of claim 145 which is homogenous.

147. (NEW) The defined cell population of claim 145 which is heterogeneous.

148. (NEW) A progeny cell of the stem cell of claim 141, committed to develop into a mesodermal cell.

149. (NEW) Tissue comprised of the stem cell of claim 141, and differentiated mesodermal cells.

150. (NEW) A method of inducing mesodermal tissue comprising culturing the stem cell of claim 141 in a mesoderm-inducing medium.

151. (NEW) A method of forming tissue in a subject comprising introducing the progeny cell of claim 139 or 148 into a subject in a sufficient amount to form mesodermal tissue in said subject.

152. (NEW) A method of regenerating or repairing tissue in a subject comprising introducing a stem cell of claim 139 into a subject in a sufficient amount to regenerate or repair tissue.

153. (NEW) A method for obtaining an adipose-derived stem cell-enriched fraction (ADSC-EF) comprising treating a sample of adipose tissue from a subject to

remove adipocytes forming an adipose-derived stem-cell-enriched fraction (ADSC-EF).

154. (NEW) The adipose-derived stem-cell enriched-fraction (ADSC-EF) obtained by the method of claim 153.

155. (NEW) The adipose-derived stem cells (ADSCs) obtained by separating said cells from the ADSC-EF of claim 154.

156. (NEW) The stem cells of claim 155, wherein said stem cells are multipotent.

157. (NEW) The stem cells of claim 156, wherein said stem cell differentiate into a mesodermal tissue.

158. (NEW) Progeny of the stem cell of claim 140.

159. (NEW) A method of delivering a transgene to an animal comprising introducing the stem cell of claim 139 containing a selected transgene into a subject, such that the transgene is expressed in the subject.

160. (NEW) A method of inducing the differentiation of the cell of claim 139, comprising culturing the cell in a suitable medium effective to induce differentiation under suitable differentiation conditions.

161. (NEW) The method of claim 160 wherein said medium is a conditioned medium of a specific cell type.

162. (NEW) A method of inducing the differentiation of the cell of claim 139, comprising co-culturing the cell with a cell of desired lineage.

163. (NEW) A method of conditioning culture medium comprising contacting the medium with the cell of claim 139.

164. (NEW) The cultured medium obtained by the method of claim 168.

165. (NEW) A kit for obtaining adipose-derived stem cells (ADSCs) from adipose tissues of a subject comprising means for separating the ADSCs from the adipose tissue.

166. (NEW) The kit of claim 165, further comprising a device for isolating adipose tissue from a subject.

167. (NEW) The kit of claim 165, further comprising a medium for inducing differentiation of the adipose-derived stem cells.

168. (NEW) The kit of claim 165, further comprising a medium for culturing the ADSCs.